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(polymer and particle) and ((buoy\$ near20 agent) and (gas or oil))	114

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### Search History

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L3	(polymer and particle) and ((buoy\$ near20 agent) and (gas or oil))	114	L3
L2	(polymer and particle) and ((buoy\$ near20 agent) same (gas or oil))	41	L2
L1	(polymer same particle) same ((buoy\$ near10 agent) same (gas or oil))	2	L1

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FILE 'CAPLUS, MEDLINE' ENTERED AT 15:05:00 ON 19 MAY 2006  
L1 50805 S (POLYMER (20A) PARTIC?)  
L2 5117 S ((BUOY? OR FLOTAT?) (10A) (AGENT OR MATERIAL))  
L3 10 S L1 AND L2  
L4 10 DUPLICATE REMOVE L3 (0 DUPLICATES REMOVED)

L4 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
TI Polymer-coated sand and ceramic **particles** as proppants for fracturing of petroleum wells  
AB Proppants for hydraulic fracturing of, or sand control in, petroleum wells are porous materials treated with selected coatings, glazes, or penetrating materials to achieve a desired mech. (crush) strength or apparent d. to fit the downhole conditions. The porous particulate material is a relatively lightwt. or substantially neutrally buoyant particles, with crush resistance at closure stresses as high as 10,000 psi, are suspended in a carrier fluid and, when injected into a reservoir, have a porosity and permeability such that the proppants and the carrier fluid are drawn into the reservoir rock by capillary action. Suitable carrier fluids are liquid carbon dioxide and nitrogen. The porous **particles** are coated or penetrated with a liquid resin, polymer resin, cement, sealant, or binder, selected from a phenolic resin (e.g., phenol-formaldehyde resin), melamine-formaldehyde resin, polyurethanes, epoxy resins, polyamides, polyethylene, polystyrene, and ethylcarbamate-based resins. The proppant formulations can also contain gelling agents, crosslinking agents, gel breakers, surfactants, foaming agents, demulsifiers, buffers, clay stabilizers, and acids.

L4 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
TI Method and apparatus for rapid separation of wastewater containing suspended particles by flotation  
AB The method comprises (1) adding flotation **particles** (e.g., foamed styrol microparticles) and a anion polymer coagulant to stick the suspended **particles** to the surface of the floating **particles** for flotation separation, and (2) filtrating the wastewater through a device filled with filtering material (e.g., polypropylene).

L4 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
TI Method for clarification of wastewater containing surfactants  
AB A method and apparatus for recovering oil and clarifying wastewater from an oil field are described. The method includes the step of treating the wastewater with an aqueous deemulsifying agent comprising wattle tannin, an inorg. coagulant and a synthetic polymer flocculant to destabilize the oil emulsion and rapidly agglomerate the oil **particles** formed thereby. Efficiency of the present deemulsifying agent permits use of flotation equipment for rapid cleanup of the wastewater and obviates the need for large settling pits.

L4 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
TI The role of surfactants and polymers in the filler flotation from waste paper  
AB High contents of fillers such as kaolin or CaCO<sub>3</sub> limit the use of waste paper, especially in tissue paper production To determine the effect of flotation reagents on the removal of fillers, adsorption,  $\zeta$ -potential, and particle size measurements, as well as flotation expts. using model dispersions of CaCO<sub>3</sub>, kaolin, and cellulose fibers were carried out. The adsorption of the cationic polymer starts at low initial concns. on the neg. charged filler surfaces and cellulose fibers. However, due to the steeper slope of the adsorption isotherm on the fillers, the polymer is preferentially adsorbed on the fillers. Furthermore, the adsorption of the polymer causes an increase in the particle size of the fillers. Anionic surfactants are generally better suited for waste paper systems containing CaCO<sub>3</sub> than for those with kaolin. This is due to the fact that the adsorption onto CaCO<sub>3</sub> occurs at lower concns. than that onto kaolin. Ca ions dissolved in the pulp improve the adsorption of anionic surfactant onto kaolin and are necessary for a sufficiently high recovery of the fillers.

L4 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

TI Matting surface layer for silver halide photographic material  
AB A photog. material comprising  $\geq 1$  Ag halide photog. emulsion layer containing a hydrophilic colloidal binder contains, over  $\geq 1$  of the emulsion layers, a matting surface layer comprising a binder and  $\geq 2$  different types of non-developmentally dissolvable particles, one type of the particles comprising a matting agent having an average particle size of between 1 and 10  $\mu\text{m}$  in a coating weight of between 0.015 and 0.15 g/m<sup>2</sup> and the 2nd type of particles comprising buoying particles having an average particle size of between 0.20 and 0.75  $\mu\text{m}$  in a coating weight of between 0.2 and 0.7 g/m<sup>2</sup>. The matting agent is preferably an inorg. material. The buoying particles preferably comprise an organic polymeric material. The combination of particle having different sizes is used to improve drawdown, reduce the starry night effect, and maintain the sensitometric quality of the photog. material.

L4 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

TI Recovery of fine particles or ions from liquids

AB Fine **particles** or ions of metallic oxide, hydroxide, sulfate, carbonate, silicate, or phosphate are separated by **flotation** with a cationic **polymer** collecting **agent**. Thus, a colloidal (600 ppm) SiO<sub>2</sub> suspension was floated with 5 ppm poly(dimethylaminoethyl methacrylate) acetate for 5 min to recover 99.8% SiO<sub>2</sub>. The residual SiO<sub>2</sub> content was 1 ppm.

L4 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

TI Wastewater treatment

AB A fibrous composite waste-treating agent consisting of oil emulsion-treatable fine inorg. **particles** or an organic **polymer** is added to a wastewater to adsorb the sludge material in an air **flotation** treatment process. The method requires no pH control, provides excellent filterability, and removes emulsifier oils. Thus, an autoclaved reaction product of MgCl<sub>2</sub>, high density polyethylene [9002-88-4], and methylene chloride [75-09-2] was formed to a filament (.apprx.15 mm long and .apprx. 5  $\mu$  diameter) to obtain the composite. A slurry containing 4% fibrous composite was added at 1500 ppm to a steel cold-rolling mill wastewater containing 680 ppm oil (2-14  $\mu$  size), air-flotation treated; the treated water contained 2 ppm oil, and the spontaneously combustible scum was dewatered easily.

L4 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

TI Separation of vinyl chloride from its mixtures with other substances

AB Vinyl chloride (I) [75-01-4], PVC [9002-86-2], or vinyl chloride copolymers were separated from other nonplastic materials by introducing gas bubbles into an aqueous dispersion containing the mixture and a **flotation** agent, and floating the vinyl chloride component. Thus, 400 g of a mixture of I monomer and **polymer** with sand and dirt of **particle** size <5 mm was dispersed in 8000 ml. water and mixed with 30 g/ton pine oil. Gas was blown into the mixture for 5 min, floating the I which was collected with a 98% recovery rate.

L4 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

TI Organic modifiers for flotation of ores containing clay

AB The mechanism of the action of some soluble polymers during flotation of K ores containing clay impurities was discussed. The presence of clay reduced the effectiveness of flotation. Addition of polymers leveled this neg. action as a result of KCl flotation activation. Two reagents should be combined as a modifier: one an activator for KCl flotation and the other depressor for clay flotation. Cation active polymers are more effective activators for KCl flotation than the anion active ones. Introduction of amide N into the **particles** of an anion-active **polymer** enhanced, in some cases, its activating action.

L4 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

TI Relation between the structure of polymer molecules and their depressing

AB action during the flotation of potassium salts  
The effect of mol. structure on the adsorption and repression capacities of polymers during flotation of K ores was studied by adsorption of polymer on washed clays in saturated KCl and NaCl solns. The modified starches and cellulose sulfoethyl ether (I), having a different number and character of functional groups in the mol. and therefore different structure of mols. in solution, were used during the study. Comparison of adsorption and depressing properties of polymers showed that the value of adsorption on clay is not the main factor during evaluation of depressing capacity of a reagent. The cornstarch, which absorbs well on the clay, cannot be used as a depressing agent because it has a low efficiency during ore flotation. The selectivity of starch increases with increased degree of oxidation up to a definite limit. I at low adsorption on clay has a high depressing effect similar to oxidized starches. The depressing effect of I increases with increased mol. weight. In spite of relatively low adsorption on clay surfaces, the oxidized potato starches are good depressors of the effect of clay slimes during flotation of K ores. The mechanism of higher polymer adsorption on clay particles depends on the structure of polymer mol. The extended (uncoiled) polymer mols. can cover clay particles as continuous layers, whereas in coiled mols. a part of chain is screened by adjacent groups and enters into intramol. assocns., and cannot participate in interaction with particle surface. The parts of rock surface, not protected by depressor, adsorb flotation agent, decrease adsorption on KCl crystals, and decrease correspondingly the efficiency of flotation.